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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,827	02/15/2001	Colm J. Prendergast	AD-217J	5800

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 04/09/2003

124

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/784,827

Applicant(s)

PRENDERGAST ET AL.

Examiner

Dr. Ramnandan Singh

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on January 21, 2003 have been fully considered but they are not persuasive.

(1) Applicant's argument--- Ehlig, however, does not teach or suggest the A/D and D/A functionality of the Applicant's claimed invention. Applicant's claim 1 also recites, in part, "an input digital signal to be communicated across the isolation barrier" on page 3, lines 5-9 [Applicant's response dated January 21, 2003].

Examiner's response--- Examiner respectfully disagreed. The use of A/D and D/A converters is well-practiced in the art of telephonic communications systems. In this context, it may be noted that Ehlig teaches using a D/A converter 539 for converting an input digital signal to an analog signal before it is applied to a Data Access Arrangement (DAA) 787 for analog communications [Figs. 10-12, 18]. Therefore, it is within the level of skill of the ordinary artisan to make the claimed invention.

(2) Applicant's argument--- "Referring to Ehlig's Fig. 18, note that Ehlig's DAA 787 communicates bi-directionally and that both A/D 785 and D/A 785 converters are located on only one side (opposite the line side) of the DAA 787 while the opposite side (line side) of the DAA 787 is directly connected to an (analog) 773" on page 3, lines 10-14 [Applicant's response dated January 21, 2003].

Examiner's response--- Since the Ehlig's DAA 787 communicates bi-directionally, both A/D 785 and D/A 785 converters are required to handle bi-direction conversions of digital data for analog communication across the DAA 787. "Unit 785 provides analog communication to DAA 787" [Ehlig ; p. 34, lines 19-20]. Further, applicant is directed to Fig. 10 of Ehlig that converts an input digital signal using a D/A 539 before sending the input digital signal to the DAA. Accordingly, it is within the ordinary skill in the art to apply a pair of A/D and D/A converters also at the line side to make a bi-directional analog communication system to the Ehlig's DAA 787; and thus make and use the claimed invention.

(3) Applicant's argument--- "Rahamim does not teach or suggest the communication of analog signals across an isolation barrier circuit nor mention of the use of an isolation barrier circuit" on page 4, lines 13-14 [Applicant's response dated January 21, 2003].

Examiner's response--- In response to applicant's argument, the examiner states that the Rahamim's DAA has line side circuitry including a telephone network interface and system side circuitry including a host system interface, wherein the line side circuitry and the system side circuitry are separated by a voltage isolation barrier [Rahamim; Abstract]. Thus, the DAA circuitry acts as an isolation barrier. In addition, Rahamim illustrates an isolation circuit with a capacitor [Fig. 3B]. Clearly, the Ehlig's DAA 787 also may have an isolation circuit with a capacitor for communications across the isolation barrier, wherein the signal to be communicated may be either an analog or

digital signal. This is because a capacitor, as an isolation element, accumulates **electric charges** and then discharges to enable communications across the isolation barrier having the capacitor.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-11, 13-20 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlig et al [US 5,550,993] in view of Rahamim et al [US 6,081,586].

Regarding claim 1, Ehlig et al teaches analog communication across an isolation barrier in the form of a data access arrangement (DAA) 787, wherein this DAA may comprise a single isolation element or a mixture of multiple isolating elements in parallel such as capacitors, transformers, and optical isolators. The analog communication system comprises an analog to digital converter 539 having an analog output S(t) connected the DAA; an analog to digital (A/D) converter 785 having an input coupled to the analog output of the DAA for providing a digital output [Figs. 10-12, 18; col. 31, lines 14-56; col. 34, lines 15-34].

Ehlig et al teaches a generic DAA; it does not disclose expressly an isolation element, such as capacitor or a transformer of the DAA.

Rahamim et al discloses isolation barriers with capacitors and transformers [Figs. 3B-3E].

Ehlig et al and Rahamim et al are analogous art because they are from a similar problem solving area, viz. , telephonic communications across a DAA.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the isolation element of the DAA of Rahamim et al with Ehlig et al.

The suggestion/motivation for doing so would have been to provide an explicit description of the DAA for its operational use with the Ehlig et al system.

Regarding claims 2-7 and 17-20, Ehlig et al teaches an encoder 527, and a digital modulator 533 connected the D/A 539 [Fig. 10]. He also teaches sending digital output from the A/D converter to a demodulator and a decoder 551 [Figs. 12, 18]. Further, a constant average voltage denotes an inherent feature of an analog communication system across an isolation barrier. All other limitations are shown above.

Regarding claims 8-11, the combination of Ehlig et al and Rahamim et al discloses isolation barriers with capacitors and transformers [Rahamim et al; Figs. 3B-

3E]; and teaches terminating resistances 412, 413 and 430, 426 across the isolation barrier [Rahamim et al; Fig. 5]. All other limitations are shown above.

Regarding claims 13-16, Ehlig et al teaches data and control information [Fig. 16] supplied by two-way communication paths DSP 653 and a second device 11 [col. 32, lines 66-67; col. 33, lines 1-16]. All other limitations are shown above.

Regarding claims 21-23, Ehlig et al teaches analog communication with a bi-directional isolation system 787 [Fig. 18]. All other limitations are shown above.

Regarding claim 24, Ehlig et al teaches an echo canceller 515 to improve the transmission of a communication circuit [Fig. 9; col. 27, lines 54-62; col. 31, lines 7-13]. All other limitations are shown above.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ehlig et al and Rahamim et al as applied to claims 1-11 above, and further in view of Chea, Jr. [US 4,387,273].

Regarding claim 12, the combination of Ehlig et al and Rahamim et al does not teach expressly a common mode interference signal sensing circuit and a summing circuit to remove the common mode interference signal.

Chea, Jr. teaches a common mode interference signal sensing circuit and a summing circuit to remove the common mode interference signal [col. 2, lines 64-67; col. 3, lines 1-3; col. 6, lines 36-54; col. 1, lines 55-67].

Ehlig et al, Rahamim et al and Chea, Jr. are analogous art because they are from a similar problem solving area, viz. , telephonic communications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the common mode rejection technique of Chea with the combined system Ehlig et al and Rahamim et al.

The suggestion/motivation for doing so would have been to reduce the power dissipation in the interface circuitry of the isolation barrier [Chea, Jr. ; col. 1, lines 7-12].

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-0377.

Dr. Ramnandan Singh
Examiner
Art Unit 2644



March 25, 2003



FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER
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